Report on FI studies with PEPSI

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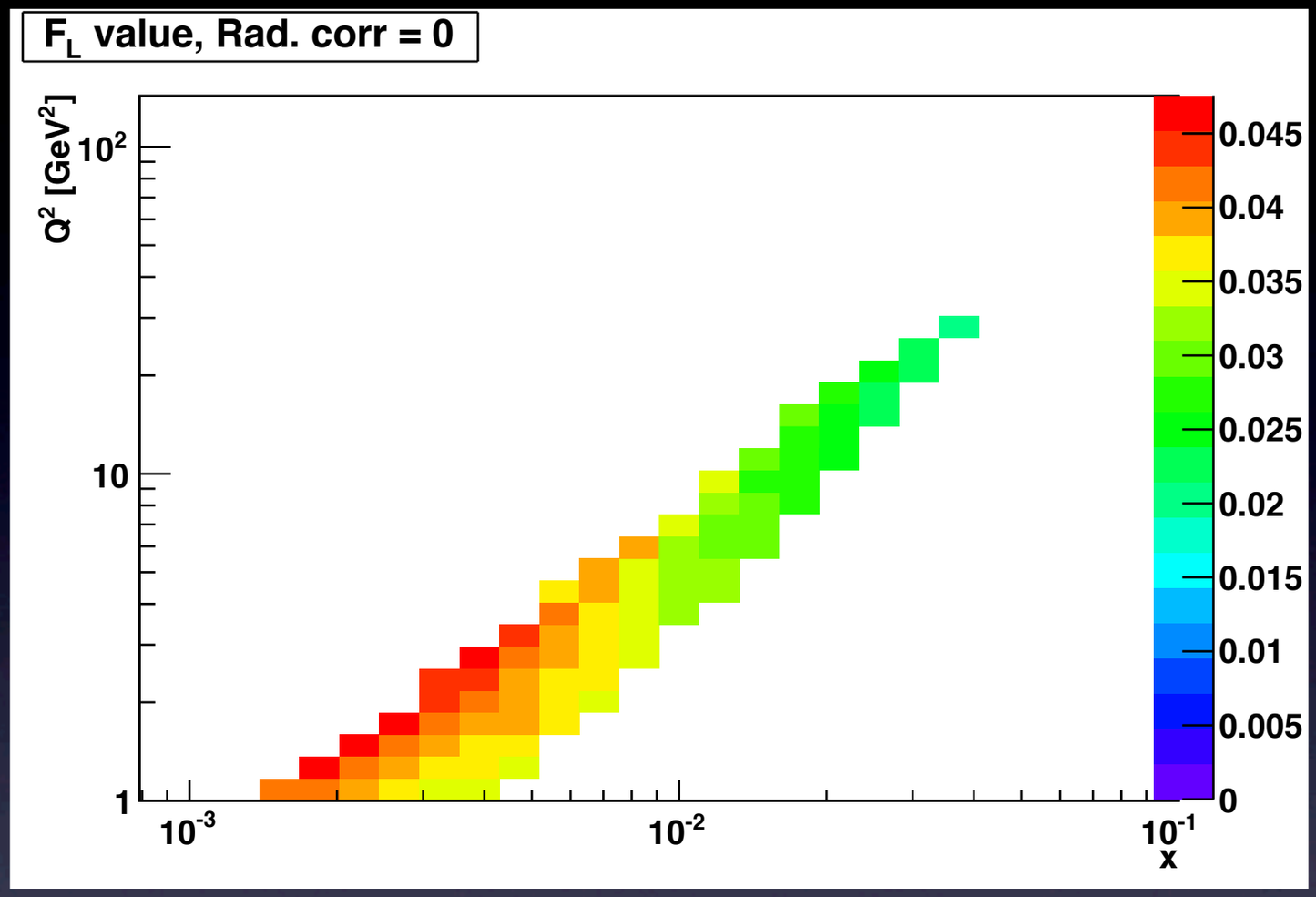
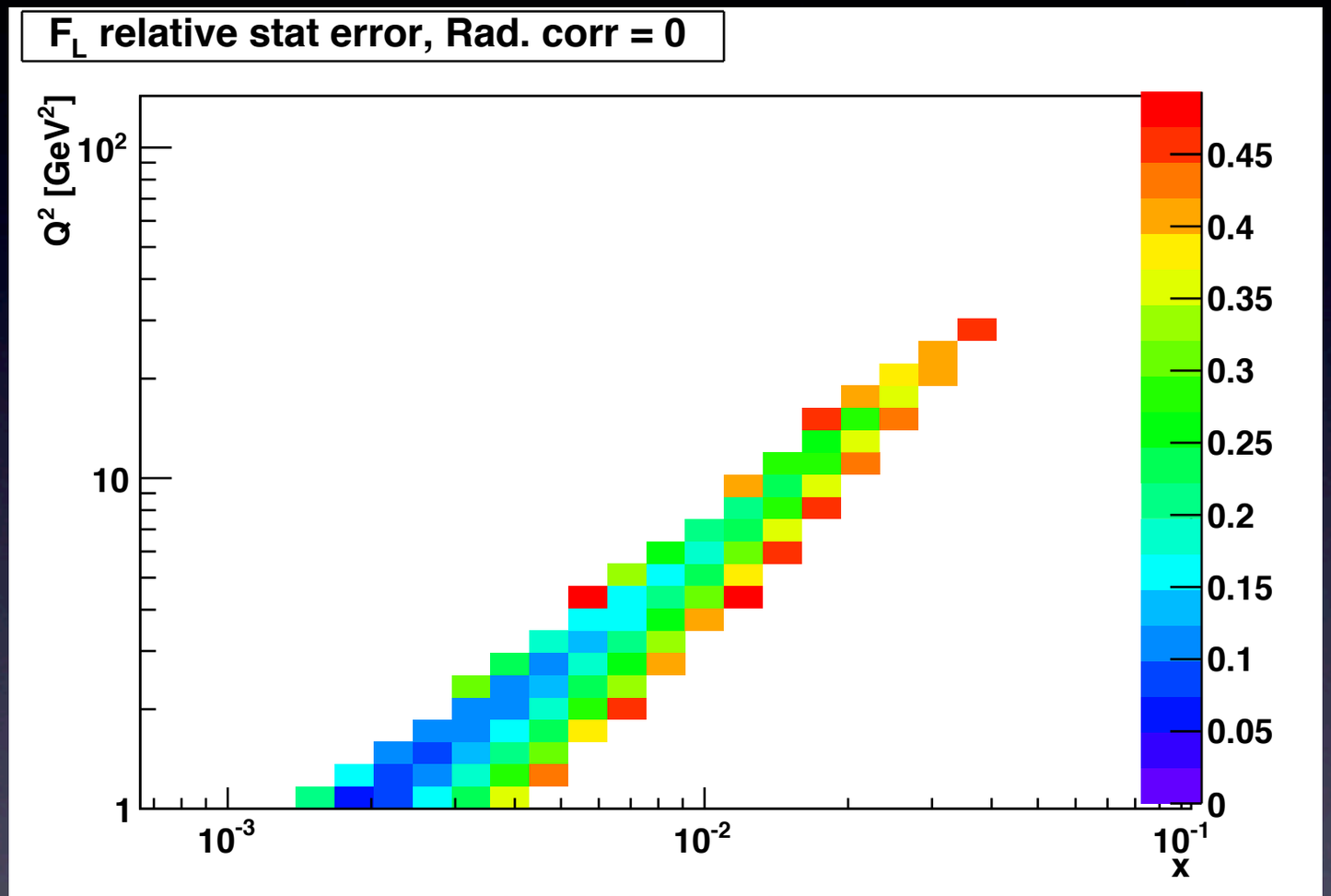
We have resumed the generation of e+p events with the PEPSI Monte-Carlo.
I have generated 10M events per setting for 4X50, 4X100 and 4X250 (EeXEp). That is equivalent to 3 weeks of running MeRHIC at L = 10^{32} cm^{-2} s^{-1} and a cross section for inclusive DIS of 0.4 micro barn.

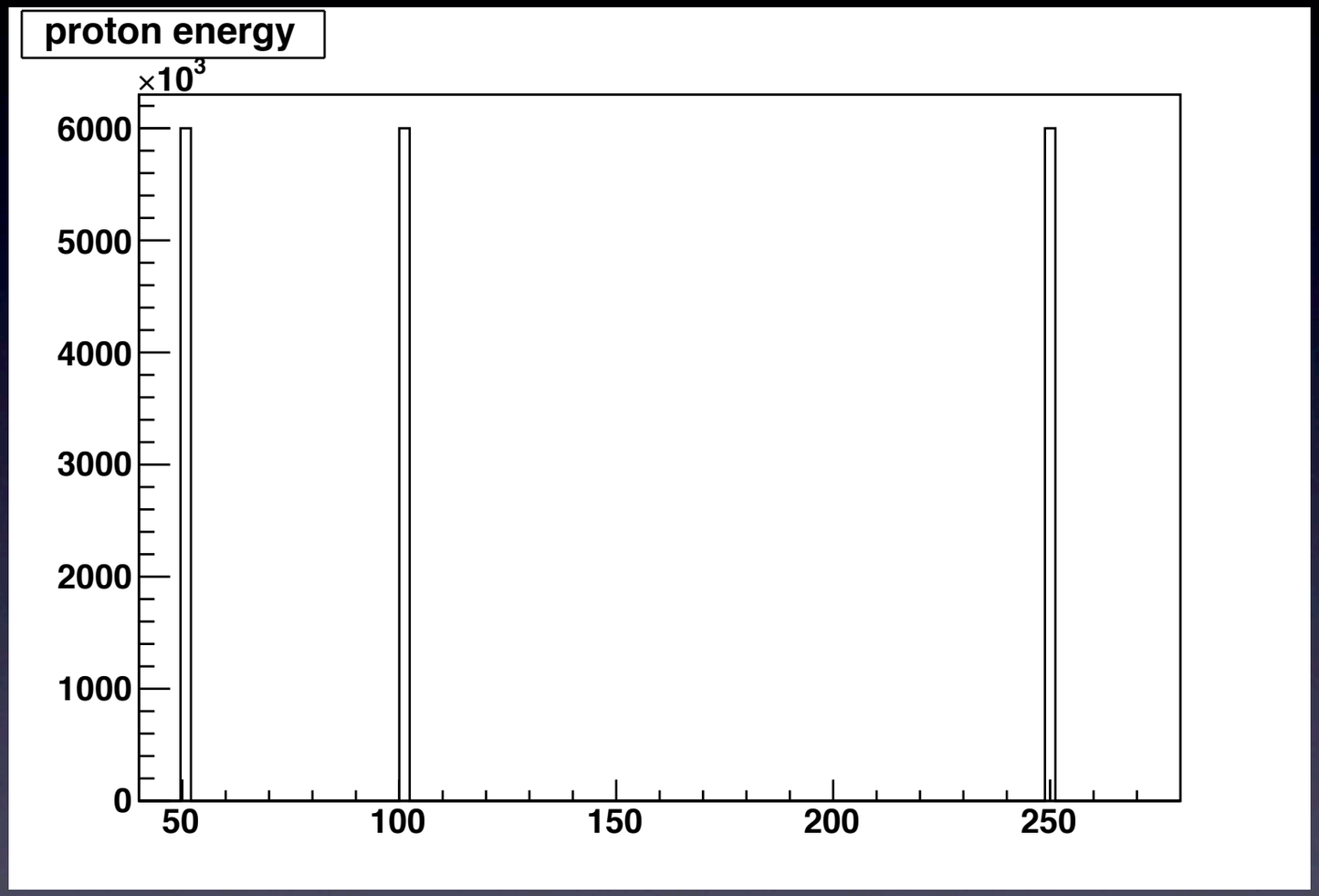
The information stored in the root trees filled with output from PEPSI is transferred to a program that bins x, Q2 and y and fits the values of reduced cross section as function of y. Those plots are fit to straight line and F2 is the intercept and Fl the slope.



Fl values without conditions on the statistical error. Useful only to show rough coverage of the measurement.



Relative statistical error for ~6M events transferred to root trees.


proton energy
×10^3
6000
5000
4000
3000
2000
1000
0
50
100
150
200
250

The next step consist on displaying many more intermediate steps, from generation to extraction of Fl. (Validation).
Next I plan to work on introducing detector resolution. (smear x Q2 and y with Gaussian distributions and extract Fl.) (Do I have to recalculate cross sections?)
Turn on radiation corrections in the Monte-Carlo and repeat extraction of Fl.